LETTERS TO THE EDITOR

Intramural migration of implantable cardioverter-defibrillator patch

To the Editor:

Despite all modifications of patch implantation and fixation techniques, patch crinkling and folding causes significant morbidity. We agree with Molina, Benditt, and Adler[1] that the observed incidence of this complication is unacceptably high.

A recent case of ours illustrates an extreme consequence of patch crinkling. A patient with dilated cardiomyopathy and chronic atrial fibrillation, now 58 years old, had first undergone placement of an implantable cardioverter-defibrillator (ICD) at an outside hospital in 1989. At that time a Ventak 1600 AICD device (Cardiac Pacemakers, Inc., St. Paul, Minn.) had been connected to two epicardial patches and to two epimyocardial screw-in type electrodes. All electrodes were placed via a subxiphoid approach. How the patches were secured could not be determined from the old records. The device was replaced by a Ventak 1705 AICD device in 1992. Until 1994 eleven episodes of ventricular tachyarrhythmias had been terminated by the device. In 1994 first signs of an ICD pocket infection were observed. A labeled white cell scan aroused suspicion of additional mediastinal infection. When the patient was referred to our department in March 1995, a small area of skin over the ICD pocket was beginning to necrose. The skin over the AICD device was bulging because the device was not lying in a coronal plane, but in a nearly horizontal position. With the likely diagnosis of an ICD system infection, we opted to explant the generator and the lead system: some turbid fluid was found in the ICD pocket, and cultures grew a sensitive strain of *Staphylococcus epidermidis*. Patch explantation was not possible through a subxiphoid incision. Dissection proceeded via a median sternotomy. There were dense intrapericardial adhesions. The anterior epimyocardial patch electrode appeared embedded in fatty tissue over the acute right ventricular margin. After it was removed it became obvious that the patch had formed part of the right ventricular free wall: bleeding from the right ventricle was only poorly controlled with digital pressure. Right ventricular repair over an inflated Foley catheter or similar methods did not seem appropriate. Cardiopulmonary bypass was required, which was initiated by means of a cannula in the ascending aorta and blood returning to the pump via cardiotomy suction at first, then converted to femoral vein cannulation, because the right atrium was not accessible as a result of dense scar tissue. After the right ventricle had been repaired with sutures buttressed with two strips of pericardium, we attempted to free the other patch. The patch was overlying the right atrium and dissection had to be abandoned because of practically impenetrable scar tissue. The patient was weaned from cardiopulmonary bypass. A closed mediastinal irrigation/suction system was placed. The recovery was uneventful. Antibiotics were given for 4 weeks. Eight weeks after this partial removal, the patient remained free of any signs of infection and he underwent implantation of a new ICD system (pectoral "active can," Medtronic 7219C [Medtronic, Inc., Minneapolis, Minn.] with a single transvenous lead). The postoperative course was uneventful.

Patch migration into the right ventricular free wall still allowed the old system to function properly at 34 joules (which was the programmed energy setting; a defibrillation threshold had not been redetermined after the initial implantation). Significant technical problems arose from patch migration in this case. We are aware that the standard management of an infected lead system dictates complete removal of all foreign material. We did compromise and left the atrial patch in place, because a large portion of the right atrium would have had to be reconstructed if we had injured the wall.

It is conceivable that a mediastinal infection had caused the severe adhesions,[2] as well as the migration of the patch to its intramural position.

This case lends further support to the conclusions drawn by Molina, Benditt, and Adler[1] and sheds additional light on possible severe problems with ICD patch removal.

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REFERENCES

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Echo-free perfused space after homograft replacement of aortic valve: A morphologic study

To the Editor:

We read with interest the letter from Carrel and coworkers[1] regarding a peculiar echocardiographic finding after homograft replacement of the aortic valve, which they called "echo-free perfused space."

We recently dealt with a similar case. A 64-year-old man with chronic hepatitis C came to our observation in very poor condition after acute endocarditis caused by *Staphylococcus hominis*. Twelve years previously, he had undergone aortic valve replacement for aortic stenosis with a 25 mm Medtronic Hall valve (Medtronic, Inc., Minneapolis, Minn.). Transesophageal echocardiography